Project Baseline Summary Report

Data Source: **EM CDB** Report Number: **GEN-01b**

Operations/Field Office: **Ohio** Print Date: **3/9/2000**

Site Summary Level: **Fernald Environmental Management Project** HQ ID: **0524**

Project **OH-FN-03 / On-Site Disposal Facility**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

The OSDF began construction in June 1997. It will consist of an earthen mound of eight or nine individual cells. The OSDF will contain some 2.5 million cubic yards of FEMP remediation wastes. Soils, concrete, steel, transite panels, fly ash, sludge, and other solid waste materials with low level contamination will be permanently enclosed in the OSDF liners and caps.

The On-Site Disposal Facility (OSDF) Project includes the workscope for the OSDF. In addition to the OSDF, this element includes the North Entrance Road relocation, the Haul Road, the leachate conveyance system, impacted material placement, and design and construction of the borrow area(s). This project provides for the construction and maintenance of an OSDF and support facilities, receipt and placement of wastes and impacted materials, facility closure, and post-closure monitoring and maintenance.

Waste Acceptance Organization (WAO) activities will include definition and implementation of field and administrative activities to support, independently verify, and maintain a documented record of attainment of radiological/chemical and Physical Waste Acceptance Criteria (WAC) for the Fernald Environmental Management Project (FEMP) waste materials placed in the OSDF.

Technical Approach: The OSDF is a disposal facility that uses both natural and man-made materials to achieve the performance objective of being protective of human health and the environment. The OSDF has eight cells with a contingent ninth cell. These cells will be constructed in phases to accommodate the accelerated cleanup at Fernald. As each cell is constructed, a natural and man-made liner and cap system will be installed to protect and contain the remediation waste.

Technology Needs: A need (OH-F019) has been identified to investigate further "Stabilization of Uranium in Low Permeability Soils." This could provide an additional level of environmental protection. The FEMP is sponsoring literature reviews as the initial phase in response to OH-F039 (OSDF vegetative cover) and OH-F040 (OSDF bio-intrusion layer).

Project Status in FY 2006:

All waste placement and final capping would be complete. The Leachate Collection System would continue to operate to collect all leachate for treatment at the Advanced Wastewater Treatment Facility.

Post-2006 Project Scope:

Activities include maintenance and standby of the Advanced Waste Water Treatment Facility (AWWT) to ensure full containment and capture of any residual contaminated groundwater plumes, monitoring and maintenance activities, D&D of the AWWT and related on-site and off-site pipelines and wells and related soils, and either shipment of this material off site or disposal in Cell 8 of the OSDF.

Project End State

Access to the OSDF will remain restricted and monitored and under institutional controls in perpetuity. The remainder of the site is expected to

Project Description Narratives

achieve final cleanup levels which could support various land uses. However, the decision to limit use to ecological restoration and recreational use was made based on DOE's Natural Resource Damages Act obligations and stakeholder input. Residential and agricultural uses will not be considered for any portion of the site consistent with the recommendations of the Fernald Citizens Advisory Board. Industrial uses may be considered for the 23 acres of potential economic development land. DOE, or a successor agency, will maintain stewardship responsibility for the site.

Cost Baseline Comments:

Assumptions are that the OSDF priorities remain the same; the present level of RCRA, CERCLA, and NEPA integration will be maintained or improved; potential incremental funding for OSDF; open OSDF and place material at a slower pace; no contingency; waste placement is dependent on D&D Project supplying required debris as planned; waste placement is dependent on Soils Project supplying required materials as planned; construction of planned Cells III-VIII dependent on Soils Project certifying area; and Borrow Area construction dependent on Soils Project certifying borrow area. Estimates to support the baseline for this PBS were completed using a bottoms-up approach.

The Ohio Field Office has an aggressive cost savings program in place to contain or reduce the Total Estimated Cost of the project; however, there is potential for cost growth at the FEMP because the baseline estimates do not include contingency, and Operable Unit 4 (Silos Project) is in the process of amending the Record of Decision with the EPAs.

Safety & Health Hazards:

The OSDF will contain low level wastes with radiological and /or chemical concentrations exceeding free release limits. The permitted radiological and chemical concentrations are specified in Chapter 4 of the Implacted Material Placement Plan.

Safety & Health Work Performance:

The resources necessary to plan and provide oversite in order to accomplish the planned work safely are provided through the projects allocation of assigned safety and health functional area subject matter experts. Safety and health resources representing functional areas such as radiological safety, occupational safety and health, fire protection engineering, and emergency management are planned and allocated into these categories by cost centers through the work break down structure. Safety and health funding for this project is expected to remain constant until final closure is accomplished. There are no unfunded Safety and Health categories.

PBS Comments:

The OSDF is critical to completion of the accelerated cleanup. The FEMP project has already undergone strategic planning to accelerate the cleanup from 25 years to 10 years. This has resulted in a significant amount of savings. To further reduce mortgage costs and allocate additional funds to the cleanup activities requires: a) the removal of the nuclear materials from the site; b) completion of safe shutdown activities; c) utility reduction projects, and (d) innovative technology particularly for real-time analysis, certification of cleanup/release levels. A factor that allowed the FEMP to pursue accelerated cleanup is the agreement and recommendations made by the Citizens Task Force on cleanup levels and disposition of the waste (amount and waste acceptance criteria levels for onsite disposal facility and disposition off-site for wastes above the waste acceptance criteria). Major efforts at recycling materials from the site have been initiated to help reduce/minimize the size of the disposal facility.1

Fernald developed and implemented an accelerated schedule in FY 1995. This baseline was validated and granted Level 1 approval on August 21,

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Project Description Narratives

1996. Impacts to the baseline due to the current funding targets will cause a three year schedule extension. Fernald has committed to implementing cost savings, productivity improvements, and incremental funding to complete the project within the FY 2006 timeframe.

Baseline Validation Narrative:

On October 29, 1998, DOE-FEMP received DOE-HQ approval on the Fiscal Year 1999 Replan Baseline Change Proposal to the current FEMP Baseline. The FEMP Baseline had been previously validated after DOE-HQ completed their review and provided their approval on August 21, 1996. Many internal and external reviews have been performed on the FEMP Baseline. In March 1998, the U.S. Corps of Engineers performed an external cost review on the OSDF project with results showing the disposal cell estimates consistent with industry standards. In August 1997 and January 1996, external cost reviews were performed on Operable Unit 4, one by the U.S. Corps of Engineers and one by the U.S. Department of Interior (DOI) and the U.S. Department of Energy (DOE). In June 1996, LMI, Janson Associates, and Burns & Roe performed an external cost review on support costs showing the cost estimates were reasonable. In July 1995, DOI and DOE performed an external cost review on Operable Unit 1 and made formal recommendations to generate technical and/or economic advantages. In September 1993, MTC, Booz-Allen, and Burns & Roe performed an external cost review on the FEMP site and had no significant findings. In addition to external cost reviews, since 1991 almost fifteen internal reviews have been performed.

General PBS Information

Project Validated?	Yes	**Date Validated:**	10/29/1998
Has Headquarters reviewed and approved project?	Yes		
Date Project was Added:	12/1/1997		
Baseline Submission Date:	7/8/1999		
FEDPLAN Project?	Yes		

Drivers:

CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
Y	Y	N	N	N	N	N	Y

Project Identification Information

DOE Project Manager:	Rob Janke
DOE Project Manager Phone Number:	513-648-3124
DOE Project Manager Fax Number:	513-648-3076
DOE Project Manager e-mail address:	rob.janke@fernald.gov
Is this a High Visibility Project (Y/N):	Y

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Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	228,310	6,030	234,340	17,917	16,243	16,064	15,879	16,640	16,383	19,291	21,986	23,397	46,199	38,450	11,983
PBS Baseline (constant 1999 dollars)	209,343	4,862	214,205	17,917	16,243	16,064	15,879	16,640	15,952	18,290	20,297	21,032	40,437	32,770	9,944
PBS EM Baseline (current year dollars)	228,310	6,030	234,340	17,917	16,243	16,064	15,879	16,640	16,383	19,291	21,986	23,397	46,199	38,450	11,983
PBS EM Baseline (constant 1999 dollars)	209,343	4,862	214,205	17,917	16,243	16,064	15,879	16,640	15,952	18,290	20,297	21,032	40,437	32,770	9,944

	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	5,547	483	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	4,482	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	5,547	483	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	4,482	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.10%

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2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/1/2006

Current Projected End Date of Project: 9/30/2008

Explanation of Project Completion Date Difference (if applicable):

The placement of the final cap on the OSDF remains 9/30/2006. The extension of the project completion date recognizes the need for administrative details to be completed after the final cap is placed.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	188,990	**Actual 1997 Cost:**	16,243	**Actual 1998 Cost:**	15,879
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	156,868	**Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):**			4,235
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	161,103				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	21,528	$21,528K from increased regulatory oversight of OSDF waste disposition and increased labor cost.
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	182,631	
Additional Amount to Reconcile (+):	-2,407	($1,956K) from FY97/FY98 Uncosted Balances. ($450K) from escalation error.
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**180,224**	

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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Complete placement of one-foot protective layer in On-Site Disposal Facility (OSDF).			12/31/1998						Y		
Complete placement of one-foot protective layer in On-Site Disposal Facility (OSDF).			12/31/1998						Y		
Initiate construction of the On Site Disposal Facility.			10/1/1992								
Initiate project activities for On Site Disposal Facility.			10/1/1992								
Initiate project activities for On Site Disposal Facility.			10/1/1992								
Place final cap on On Site Disposal Facility.			9/30/2006								
Place final cap on On Site Disposal Facility.			9/30/2006								
Complete project close-out for On Site Disposal Facility.			9/30/2008								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Complete placement of one-foot protective layer in On-Site Disposal Facility (OSDF).											Complete placement of one-foot protective layer in On-Site Disposal Facility (OSDF). This milestone was met ahead of schedule on November 20, 1998, when one foot protective layer was placed in Cell #2.
Complete placement of one-foot protective layer in On-Site Disposal Facility (OSDF).										Y	
Initiate construction of the On Site Disposal Facility.				Y						Y	
Initiate project activities for On Site Disposal Facility.				Y							

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Initiate project activities for On Site Disposal Facility.				Y						Y	
Place final cap on On Site Disposal Facility.			Y				1	1	1		Place cap on final cell, cell #7.
Place final cap on On Site Disposal Facility.					Y					Y	Place cap on final cell #7.
Complete project close-out for On Site Disposal Facility.			Y		Y	Y	1	1	1		Complete project close-out for On Site Disposal Facility.

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planne 200
LLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
Rem. Waste														
Disposed	M3	2,127,249.00	1,063.00	2,128,312.00	0.00		0.00	59,780.00	268,526.00	216,859.00	134,250.00	331,092.00	276,560.00	500,627.(

Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
LLW													
On-Site Disp.	M3												
Rem. Waste													
Disposed	M3	500,627.00	291,963.00	47,592.00	1,063.00	0.00							

Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
LLW										
On-Site Disp.	M3									0.00
Rem. Waste										
Disposed	M3									2,052,527.00

Technology Needs

Site Need Code: OH-F019

Site Need Name: Stabilization of uranium in Low Permeabilty soil

Focus Area Work Package ID: SS-07

Focus Area Work Package: Vadose Zone Treatment Systems

Focus Area: SCFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Risk Reduction

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Related CCP Milestones	Related Waste Streams	Agree?	Change?
	00063: LLW-3.1 - LLW Contaminated Soil	Y	N
	00062: LLW-2 - LLW Contaminated Soil	Y	N
	00061: LLW-1 - LLW Contaminated Soil	Y	N

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Technology Needs

Site Need Code: OH-F039

Site Need Name: On-Site Disposal Facility Cap - Vegetative Cover

Focus Area Work Package ID: SS-04 **Focus Area Work Package:** Long-Lived Caps

Focus Area: SCFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both): Both

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Related CCP Milestones	Related Waste Streams	Agree?	Change?
	00063: LLW-3.1 - LLW Contaminated Soil	Y	N
	00061: LLW-1 - LLW Contaminated Soil	Y	N

Site Need Code: OH-F040

Site Need Name: On-Site Disposal Facility - Bio-Intrusion Layer

Focus Area Work Package ID: SS-04 **Focus Area Work Package:** Long-Lived Caps

Focus Area: SCFA **Agree with Technology Link:** Y

Benefits (Cost, Risk Reduction, Both): Both

Technologies	Cost Savings (in thousands of dollars)	Range of Estimate

Related CCP Milestones	Related Waste Streams	Agree?	Change?
	00063: LLW-3.1 - LLW Contaminated Soil	Y	N
	00061: LLW-1 - LLW Contaminated Soil	Y	N